

REMARKS

The Examiner has rejected claim 1 under 35 U.S.C. 103(a) as being unpatentable over Alperovich et al U. S. Patent No. 6,018,660 in view of Martti et al U. S. Patent No. 6,718,169.

The Examiner states regarding claim 1, Alperovich et al discloses essentially all the claimed invention as set forth in the instant application, further Alperovich et al discloses an apparatus and method for grouping carriers to minimize the occurrence of call blocking in a satellite-based communications network. In addition, the Examiner states, Alperovich et al discloses a method for operating a mobile satellite communication system having at least one gateway (350), at least one user terminal (300), comprising steps of: for a site to be protected from UT transmissions, specifying an exclusion zone (which reads on "If the satellite subscriber's actual geographic location is within the area prescribed to the barring feature, the barring feature is invoked", as disclosed in col. 3, lines 9-11) associated therewith; and selectively providing service to a UT (300) depending on a determined location of the UT relative to the exclusion zone (which reads on, as disclosed in col. 15, lines 13-17) and on an estimate of the determined UT location (which reads on "Otherwise, the barring feature is not invoked", as disclosed in col. 3, lines 11-12). However, the Examiner submits, Alperovich et al fails to specifically disclose (a) the use of a constellation of satellites, and (b) a confidence limit (CL) and the estimated error (E).

The Examiner contends, however, that (a) the use of a constellation of satellites is well known in the art and at the time of the invention it would have been obvious to a person of ordinary skill in the art to improve Alperovich et al by modifying the system and method for invoking barring features in a satellite network with a constellation of satellites for the purpose of operating a satellite communication system.

The Examiner further states that in the same field of endeavor, Martti et al discloses a method for determining a confidence limit and, in addition, Martti et al discloses the use of (b) a confidence limit and estimated error (which reads on col. 1, lines 60-67 and col. 2, lines 1-45).

The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al by modifying the a position location system with a confidence limit and estimated error as taught by Martti et al for the purpose of setting the target value.

Applicants respectfully submit that Alperovich et al U. S. 6,018,660 is directed to a telecommunications system and method for invoking barring features within a satellite network when calls to a subscriber within the satellite network are optimized. When a call is optimized for the satellite subscriber, the actual geographic location of the satellite subscriber is sent to the HLR and the new (optimal) MSC/VLR. This location can be sent

as an MSC address, or other form. Therefore, when a barring feature is associated with the call, this MSC address is checked by the serving MSC or the HLR (in the case of barring of incoming calls when roaming outside of the home Public Land Mobile Network country). If the satellite subscriber's actual geographic location is within the barred area, the barring feature is invoked. Otherwise, the barring feature is not invoked.

At col. 3, lines 9-11 in Alperovich et al there is disclosed "If the satellite subscriber's actual geographic location is within the area prescribed to the barring feature, the barring feature is invoked. Otherwise, the barring feature is not invoked." Further, in col. 4, not col. 15 as stated by the Examiner, lines 13-17 it is stated "The MS 300 then registers with the indicated MSC/VLR 340, and sends a setup message to the new MSC/VLR 340 via the satellite 310 and the new SBSS 345, as is understood in the art. The call can then be completed normally using minimal terrestrial circuits and existing satellite resources."

Applicants have responded to the Examiner's contention regarding selectively providing service to a UT 300 depending on a determined location of the UT relative to the exclusion zone (which the Examiner contends reads on as disclosed in col. 15, lines 13-17 but Applicants have addressed col. 4, lines 13-17 as recited above). Further, Applicants respectfully submit at col. 3, lines 11-12 it is merely stated as previously recited "Otherwise, the barring feature is not invoked."

Applicants gratefully acknowledge the Examiner's admission with regard to Alperovich et al failing to specifically disclose (a) the use of a constellation of satellites and (b) a confidence limit (CL) and the estimated error (E).

In Martti et al at col. 1, lines 60-67 and col. 2, lines 1-45 there is disclosed, respectively, "A problem with the above arrangement is that the confidence limit to be set for each indicator is defined as a fixed value. At first, each network element type is typically given the same fixed confidence limit which the operator can change network-specifically, when needed. However, when a fixed confidence limit is used, special situations due to changes in traffic volumes cannot be taken into account. If a less busy network element is given the same confidence limits as a busy network element, even a minor exception from the normal number of faults may cause an error notification from the less busy network element because the number of fault situations is calculated as a percentage of the total traffic volume." Thereafter, inter alia there is a discussion of confidence limits and confidence intervals when traffic volumes increase and decrease. Applicants respectfully contend that no where in Martti et al in the drawings or specification, including the passages relied upon by the Examiner, is there any suggestion, implication or teaching that the system as disclosed in Martti et al may be employed in a satellite based system such as Alperovich et al. In col. 8, lines 47 et seq. in order to broaden the application of the system defined in Martti et al it is stated "It is apparent to a person skilled in the art that the

“invention can be applied to any other similarly functioning network, such as the public switched telephone network (PSTN).” Clearly, Applicants respectfully submit that this is intended to be a terrestrially based network and has no application or suggestion that it can be used in a satellite based network as is employed by Alperovich et al. Further, Applicants respectfully submit there is no motivation in Alperovich et al, as is seen in Martti et al, to combine the teachings of same since they are in distinct and separate fields of endeavor.

Applicants respectfully disagree that the use of a constellation of satellites is well known in the art and at the time of the invention it would have been obvious to a person of ordinary skill in the art to improve Alperovich et al by modifying the system and method for invoking barring features in a satellite network with a constellation of satellites for the purpose of operating a satellite communication system. In addition to being in different fields of endeavor, Applicants respectfully conclude that the joinder of Martti et al and Alperovich et al is improper further in view of the mere disclosure of a barring feature in Alperovich et al with no teaching, suggestion or implication that it in any way relates to a confidence limit associated therewith as required in element 1 of claim 1 and, further, selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error (E) of the determined UT location which is conspicuously absent in both of Alperovich et al and Martti et al.

Applicants respectfully submit that in Martti et al at col. 1, lines 60-67 and col. 2, lines 1-45 there is a broad-ranging discussion of confidence limits which are set and confidence intervals which are set according to traffic volume increases and decreases. Applicants respectfully submit there is no teaching, suggestion or implication of an exclusion zone having a confidence limit associated therewith as required in element 1 of claim 1, nor of providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error of the determined UT location as required in element 2 of claim 1 which is conspicuously absent in both references.

Therefore, Applicants respectfully disagree that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al by modifying the a position location system with a confidence limit and estimated error as taught by Martti et al for the purpose of setting the target value.

The Examiner has rejected claims 2-12 and 19-25 under 35 U.S.C. 103(a) as being unpatentable over Alperovich et al in view of Martti et al and further in view of Maeda et al (U. S. Patent No. 6,352,222).

The Examiner states regarding claims 2, 6, 8, 9, Alperovich et al in view of Martti et al discloses everything claimed as applied above, directing Applicants' attention to claim 1,

however, Alperovich et al fails to specifically disclose the use of the exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume, or a surface.

The Examiner states, however, that Maeda et al, in the same field of endeavor, discloses a satellite, satellite control method and satellite communication system and, in addition, Maeda et al discloses the use of an exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume, or a surface (which reads on this as to form such a polygon that includes all the service areas, as disclosed in col. 10, lines 37-39).

Therefore, the Examiner contends it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al by modifying the a position location system with the exclusion zone is specified to comprise at least one of a polygon that defines an area, a volume, or a surface as taught by Maeda et al for the purpose of setting the initial value for the orbital inclination angle.

Applicants respectfully submit that claim 1 has been shown to be patentably distinguishable over Alperovich et al in view of Martti et al for reasons recited above which are equally applicable to claims 2, 6, 8 and 9, which reasons are hereby respectfully incorporated by reference.

In Maeda et al there is disclosed "In order to establish the communication lines among the movable bodies and/or fixed stations and to configure communication system with a small number of satellites, present method has the steps of determining six orbit-related parameters by using a input conditions including a geographical condition of the service area, a desired service time and the tolerance of an ascending vertical angle within which the satellite can be viewed from the service area, and establishing the satellite communication with one or more satellites, an individual satellite being arranged on the orbits selected and combined among plural elliptical orbits corresponding to the determined six orbit-related parameters on which the satellites stay for a sufficiently long time that they may come successfully into sight in the zenith direction."

At col. 10, lines 37-39 of Maeda et al Applicants respectfully submit there is disclosed "This polygon can be formed by plural adjoining triangles." Previous to that Applicants note in col. 10, lines 32 et seq. it is stated "Those four locations are as shown in Fig. 7 and their altitude and longitude do not take an identical value generally. In case some service area is not included in a quadrangle having those locations at its corners, additional locations with their own latitude, longitude and elevation are defined so as to form such a polygon that includes all the service areas."

Applicants respectfully submit at col. 5, lines 19 et seq. in Maeda et al it is stated "In order to achieve the above objects, in accordance with the present invention, in an artificial satellite traveling along an elliptical orbit, the elliptical orbit is defined by six orbit-related

“parameters obtained with input conditions, including the geographical condition of the service area to be covered by the artificial satellite, the tolerance of the ascending vertical angle within which the artificial satellite can be viewed from the service area, and the reference time defining the orbit elements.”

Applicants respectfully submit that Maeda et al is not seen to teach, suggest or imply exclusion zones having a confidence limit associated therewith as required by element 1 of claim 1, nor is it seen to teach, suggest or imply selectively providing service to a UT depending on a determined location of the UT relative to the exclusion zone and on an estimated error of the determined UT location as required by element 2 of claim 1 from which claims 2-8 depend.

Applicants respectfully submit that the quadrangle polygons and triangles referred to in Maeda et al relate solely to service areas and not to exclusion zones as required in the claims of the instant invention.

Furthermore, aside from the use of a satellite in Maeda et al and Alperovich et al, there is no similarity at all with regard to configuring a communication system with a small number of satellites having the steps of determining six orbit-related parameters by using input conditions including geographical conditions inter alia as defined in Maeda et al with a telecommunications system disclosed for invoking barring features within a satellite network when calls to a subscriber within the satellite network are optimized as found in Alperovich et al.

Applicants respectfully submit that further combination with Martti et al relating to determining a confidence limit for a telecommunication network element in a terrestrial system is totally inappropriate with either Maeda et al or Alperovich et al.

In summary, Martti et al does not teach, suggest or imply the subject matter of claim 1, nor that of claims 2, 6, 8 and 9, and appears to relate solely to a terrestrial system for determining inter alia a confidence limit for a telecommunication network element whereby the number of data transmission connections established through the network element is stored into a database and a relative value as a ratio of the number of faulty operations in the network element to the number of data transmission connections is determined; while Alperovich et al fails to teach the use of satellite constellations or the use of exclusion zones but merely relates to invoking barring features within a satellite network when calls to a subscriber within the satellite network are optimized; and, finally, Maeda et al discloses inter alia a method employing the steps of determining six orbit-related parameters by using input conditions including a geographical condition of the service area, a desired service time and the tolerance of an ascending vertical angle within which the satellite can be viewed from the service area, and establishing the satellite communication with one or more satellites, and does not teach, suggest or imply exclusion zones.

Applicants therefore respectfully disagree that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al, which is directed as recited above, by modifying the a position location system with the exclusion zone, conspicuously absent in all of the references including Maeda et al, to comprise at least one of a polygon that defines an area, a volume, or a surface as taught by Maeda et al for the purpose of setting the initial value for the orbital inclination angle.

The Examiner states regarding claims 3-5, Alperovich et al in view of Martti et al and further in view of Martti et al (Maeda et al) discloses everything claimed as applied above, directing Applicants' attention to claim 1, in addition Alperovich et al discloses a location of the UT (300) is determined by the UT (300), and transmitted to the GW (which reads on the MSC/VLR) as disclosed in col. 4, lines 23-27.

Applicants respectfully submit that claims 3-5 have been shown to be patentably distinguishable over Alperovich et al in view of Martti et al and further in view of Maeda et al for reasons recited above which are hereby respectfully incorporated by reference. Furthermore, Applicants respectfully submit that at col. 4, lines 23-27 in Alperovich et al it is merely stated "However, when such call optimization is performed, barring features associated with the call may not be implemented correctly because the location of the MS is now considered to be the location of the new (optimal) MSC/VLR where the MS is registered." Applicants respectfully submit that this does not teach, suggest or imply the method as defined in claim 1 wherein the location of the UT is determined by the UT and transmitted to the GW as required in claim 3; the method as defined in claim 1 wherein the location of the UT is determined by the UT in cooperation with the GW as required by claim 4; or the method as defined in claim 1 wherein the location of the UT is determined by the GW as required by claim 5.

The Examiner states regarding claim 7, Alperovich et al in view of Martti et al discloses everything claimed as applied above, directing Applicants' attention to claim 1, in addition Alperovich et al discloses the UT (300) is granted service if the value of E is less than CL (which reads on "Otherwise, the barring feature is not invoked", as disclosed in col. 3, lines 11-12).

Applicants respectfully submit that claim 7 has been seen to be patentably distinguishable over Martti et al for the reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference and, furthermore, the recitation relied upon by the Examiner at col. 3, lines 11-12, which merely states "Otherwise, the barring feature is not invoked," does not teach, suggest or imply that the UT is granted service if the value of E is less than CL, nor do these terms or their equivalents appear in said reference.

The Examiner states regarding claim 10, Alperovich et al in view of Martti et al discloses everything claimed as applied above, directing Applicants' attention to claim 1, in addition Alperovich et al discloses the exclusion zone is specified to comprise a surface defined by at least two connected points on the surface of the earth and at least point located above the surface of the earth as disclosed in col. 2, lines 48-59.

Applicants respectfully submit that claim 10 has been shown to be patentably distinguishable over Alperovich et al in view of Martti et al for reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference. Furthermore, Applicants respectfully contend that Alperovich et al does not teach, suggest or imply an exclusion zone which is specified to comprise a surface defined by at least two connected points on the surface of the earth and at least point located above the surface of the earth as required by claim 10. Applicants respectfully submit this is not to be found in Alperovich et al at col. 2, lines 48-59 which relates inter alia to a geostationary satellite network which is optimized so that a subscriber is reallocated to the MSC/VLR which is the most optimal for a given call.

The Examiner states regarding claims 11-12, Alperovich et al in view of Martti et al discloses everything claimed as applied above, directing Applicants' attention to claim 1, in addition Alperovich et al discloses boundaries of the exclusion zone are static as disclosed in col. 4, lines 23-27.

Applicants respectfully submit that claims 11-12 have been shown to be patentably distinguishable over Alperovich et al in view of Martti et al for reasons recited above with regard to claim 1 which are hereby respectfully incorporated by reference. Furthermore, Applicants respectfully submit that in Alperovich et al at col. 4, lines 23-27 there is disclosed "However, when such call optimization is performed, barring features associated with the call may not be implemented correctly because the location of the MS is now considered to be the location of the new (optimal) MSC/VLR where the MS is registered." This recitation relied upon by the Examiner in no way teaches, suggests or implies that the method of claim 1 possesses boundaries of the exclusion zone that are static as required in claim 11, nor that the method as defined in claim 1 contains boundaries of the exclusion zone which are dynamic and capable of at least one of movement or change in shape as required in claim 12.

The Examiner states regarding claims 19-25, Alperovich et al in view of Martti et al discloses everything claimed as applied above, directing Applicants' attention to claim 1, in addition Alperovich et al discloses wherein there are overlapping exclusion zones specified, each having a different value of CL as disclosed in col. 4, lines 23-27.

Applicants respectfully submit that claims 19-25 have been shown to be patentably distinguishable over Alperovich et al in view of Martti et al for reasons recited above with

regard to claim 1 which are hereby respectfully incorporated by reference and, furthermore, the recitation relied upon by the Examiner at col. 4, lines 23-27 does little to cure these deficiencies. Nothing in col. 4, lines 23-27 suggests, teaches or implies overlapping exclusion zones each having a different value of CL as required by claim 19; the exclusion zone is temporary and is established and removed as a function of time as required by claim 20; wherein the values of at least one of CL and E vary as a function of time as required by claim 21; wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the UT as required by claim 22; wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the GW as required by claim 23; wherein at least one of the location or shape of the exclusion zone varies as a function of a change in location of the protected site as required by claim 24; nor wherein the exclusion zone is shared between at least two gateways as required by claim 25.

The Examiner has rejected claims 13-18 under 35 U.S.C. 103(a) as being unpatentable over Alperovich et al in view of Martti et al in view of Maeda et al and further in view of Ishikawa et al (U. S. Patent No. 6,332,069) (U. S. Patent No. 5,969,669).

The Examiner states regarding claims 13-18, Alperovich et al in view of Martti et al in view of Maeda et al discloses everything claimed as applied above, directing Applicants' attention to claim 1, however, Alperovich et al in view of Maeda et al fails to specifically disclose the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the UT.

The Examiner contends that in the same field of endeavor, Ishikawa et al discloses a method for determining position of mobile earth station in satellite communication system. In addition, according to the Examiner, Ishikawa et al discloses the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the GW (which reads on it is possible to perform high accuracy position determination by estimating and compensating for the timing error arising from instability in the accuracy of the clock of the mobile earth station and the frequency error resulting from instability of the frequency oscillator of the mobile earth station, as disclosed in col. 6, lines 10-20).

Therefore, the Examiner concludes it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al in view of Maeda et al with the use of the value of E is a function of the accuracy of the UT local oscillator, and where information that specifies the accuracy of the UT local oscillator is stored in the UT as taught by Ishikawa et al for the purpose of determining the estimated position of the mobile earth station relative to its true position.

Applicants respectfully submit that claims 13-18 have been shown to be patentably distinguishable over Alperovich et al in view of Martti et al, further in view of Maeda et al and further in view of Ishikawa et al (U. S. Patent No. 5,969,669) for reasons recited above which are hereby respectfully incorporated by reference.

Applicants respectfully submit for reasons recited above with respect to improper joinder inter alia that Alperovich et al is not properly combinable with Martti et al nor with Maeda et al nor Ishikawa et al for reasons recited above, and, further, there is not to be found in any of these references any suggestion or motivation to one of ordinary skill in the art to combine them.

Applicants respectfully submit that In Ishikawa et al '669 at col. 6, lines 10-20 there is a discussion inter alia relating to measured distances and Doppler shift amounts between the mobile earth station and the non-geostationary satellite, which are measured at different local times, errors in time which are attributable to instability in the position of the mobile earth station and in the accuracy of the clock.

Applicants respectfully submit that the reference to errors in time which are attributable to instability in the position of the mobile earth station does not teach, suggest or imply the value E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the UT as incorporated in method claim 1, as required in claim 13; a method in claim 1 where the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the GW as required by claim 14; a method as in claim 1 wherein the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in a home GW of the UT and is transferred from the home GW to a serving GW when the UT is roaming as required by claim 15; a method as claimed in claim 1 wherein the value of E is a function of the accuracy of the UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in or is determined by the UT and is transferred to the GW as required by claim 16; a method as in claim 1 wherein the UT is granted service if the value of E is less than CL and where the GW sets the value of CL to be less than a possible minimum value of E for excluding all UTs from operating within the exclusion zone as required by claim 17; and a method as in claim 1 wherein the UT is granted service if the value of E is less than CL and where the GW sets the value of CL to be greater than a possible maximum value of E for enabling all UTs to operate within the exclusion zone as required in claim 18.

Therefore, Applicants respectfully disagree that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to improve Alperovich et al in view of Maeda et al with the use of the value of E is a function of the accuracy of the

UT local oscillator and where information that specifies the accuracy of the UT local oscillator is stored in the UT as taught by Ishikawa et al for the purpose of determining the estimated position of the mobile earth station relative to its true position.

Applicants gratefully acknowledge the allowance of claim 26 and note the basis for allowance. The Examiner states regarding claim 26 the prior art of record considered alone or in combination neither anticipates nor renders obvious a mobile satellite communication system comprising at least one gateway, at least one user terminal, and a constellation of satellites, said GW comprising a controller for controlling operations of said UT and further comprising an interface to at least one of the Public Switched Telephone Network (PSTN) or to the Internet, said GW storing a database containing at least one of a Confidence Polygon, a Confidence Volume, or a Confidence Surface to establish a geometric shape located on the earth, above the earth or in space, or combinations thereof, said GW further storing a static or a variable Confidence value that is compared to a value of an error (E) in a position location of the UT, said controller acting upon the database and assigned or derived values of CL and E, to determine if a comparison of CL and E, combined with a current position of the UT, yields a certain result according to the operational mode of the GW controller, wherein depending on the operational mode of the GW the result of the comparison affects control of the UT or an external device attached to the UT, whereby the UT is forbidden or allowed to access the mobile satellite system or to make or receive a call, or depending on the operational mode of the GW the result of the comparison affects some operational characteristic of the UT to provide an ability to protect a site from UT emissions.

Applicants respectfully note that the prior art of record provided numerous teachings of methods for call blocking in a satellite-based network. However, the prior art of record failed to specifically disclose to determine if a comparison of CL and E, combined with a current position of the UT, yields a certain result according to the operational mode of the GW controller, wherein depending on the operational mode of the GW the result of the comparison affects control of the UT or an external device attached to the UT, whereby the UT is forbidden or allowed to access the mobile satellite system or to make or receive a call, or depending on the operational mode of the GW the result of the comparison affects some operational characteristic of the UT to provide an ability to protect a site from UT emissions as set out by the Examiner for reasons of the allowance of claim 26.

Applicants respectfully contend that all of the above reasons cited to support the allowance of claim 26 apply as well to rejected claims 1-25.

Applicants respectfully submit that in view of the previous recitation by the Examiner for the allowance of claim 26 and the remarks made above, all of the claims have been shown to contain non-obvious patentable subject matter and to be patentably

distinguishable over the prior art of record, Alperovich et al, Martti et al, Maeda et al, and Ishikawa et al, alone or in combination.

Accordingly, Applicants respectfully request that this application be reviewed and reconsidered in view of the above remarks and that a Notice of Allowance be issued at an early date.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "AW Karambelas".

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